

**EPA Superfund
Record of Decision:**

**LOUISIANA-PACIFIC CORP.
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OROVILLE, CA
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RECORD OF DECISION

LOUISIANA-PACIFIC SUPERFUND SITE
OROVILLE, CALIFORNIA

U.S. Environmental Protection Agency
Region 9
San Francisco, California

August 1995

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I. DECLARATION

SITE NAME AND LOCATION

Louisiana-Pacific Corporation
Oroville, California

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected final remedial action for the Louisiana-Pacific (L-P) site in Oroville, California, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for this site.

The State of California concurs with the selected remedy.

DESCRIPTION OF THE SELECTED REMEDY: NO ACTION

The selected remedy is no further remedial action. The results from soil sampling and groundwater monitoring conducted since the 1990 Interim Record of Decision indicate that the low levels of contamination at the site do not pose a significant risk to either public health or the environment. The institutional controls selected in the 1990 Interim Record of Decision are no longer necessary, and no further monitoring is required.

DECLARATION

No remedial action is necessary to ensure protection of human health and the environment. A five-year review is not required pursuant to Section 121(c) of CERCLA. EPA has determined that its response at this site is complete. Therefore, the site now qualifies for inclusion on the Construction Completion List.

AUG 01 1995

Date

Keith Takata
Deputy Director for Superfund
Hazardous Waste Management Division

II. DECISION SUMMARY

1.0 SITE NAME, LOCATION, AND DESCRIPTION

The Louisiana-Pacific (L-P) site consists of a wood processing plant and landfill located in Butte County just south of the city limits of Oroville, California (population 10,560) (see Figure 1-1, Site Location Map). Log storage, lumber production, and hardboard manufacturing take place at the plant. Disposal of wood wastes takes place at the landfill. The plant and landfill are located about 1/2 mile apart and are separated by the Koppers Company, Inc., Superfund site, which is also on the EPA's National Priorities List. Features of the L-P plant and landfill are shown in Figures 1-2 and 1-3, respectively.

The L-P plant lies in the Feather River floodplain at an elevation of about 145 feet above mean sea level in an area of tailings piles created by dredger mining activities that ceased around 1936. The northern part of the plant is occupied by buildings and paved with asphalt. The central part of the plant has been graded relatively level for log storage. The western margin and southwest corner of the plant retain much of the historic, irregular dredge-tailing topography since modified by quarrying for log-deck base material.

The Feather River is located about 1/2 mile west of the plant at an elevation of 120 feet above sea level. The Feather River floodplain extends from the river to the Baggett-Marysville Road (south and east of the L-P plant - see Figure 1-1) where it ends at a prominent bluff eroded into hills and ravines. The bluff rises 100 to 170 feet above the floodplain to meet the gently rolling upland extending to the south and east.

The landfill operation has filled one of the ravines in the eroded bluff. The effect of the landfill has been the formation of a nearly flat ridge at an elevation of 270 feet where the ravine once was located.

Surface water run-off flows westward from the L-P landfill onto the Koppers site and then into the log deck pond at the southeast corner of the L-P plant. Plant drainage flows generally south into the log deck pond but is complicated by closed drainages where run-off infiltrates to groundwater. Drainage from the log deck pond flows through a chain of three ponds immediately south of the L-P plant boundary, and then west to gravel pit ponds nearer the Feather River.

The L-P plant is underlain by two aquifers and an intervening clay aquitard. The shallow aquifer that exists beneath the plant extends from ground surface to depths of 20 to 40 feet. This aquifer is not present in the undredged areas at the adjacent Koppers site. Although the shallow aquifer probably existed prior to L-P plant operations, present water levels are higher than would naturally occur due to the sprinkler application of water to the log deck. The permeability of the shallow aquifer varies considerably laterally across the plant. Groundwater in the shallow aquifer appears to move both north and west away from the recharge areas created by the ponds, the boundary ditch and the almost continuous sprinkler irrigation of the log deck. This aquifer is not currently used as a source of water supply.

The regional aquifer extends to a depth greater than 300 feet beneath the L-P plant, and is also present beneath the Koppers site and the L-P landfill. Groundwater movement in the regional aquifer is generally to the south. This aquifer serves as a current source of drinking water.

The entire L-P plant is underlain by dredge tailings deposited during gold mining operations in the early 1900s. The tailings consist of unsorted cobble, gravel, sand, silt and clay derived from dredging of the floodplain alluvium. The dredge tailings, which may be as deep as 30 to 45 feet, constitute the shallow aquifer. Beneath the dredge tailings lies older alluvium of similar composition that was deposited by the ancestral Feather River and constitutes an aquifer of regional extent.

Land use in the vicinity of the site is mixed agricultural, residential, commercial, and industrial. One- to five-acre farms exist, and much of the produce and livestock is raised for

home use and not sold commercially. Residential areas are located to the south, southeast, west, and northeast of the site. Three schools are located within a two-mile radius of the site.

2.0 SITE HISTORY AND ENFORCEMENT

Dredge mining for gold in the Feather River basin began around the turn of the century. The Louisiana-Pacific plant area and environs rest on tailings created by the dredger mining activities. In 1929, a San Francisco-based mining firm, Natomas Company, purchased the land around the present L-P site from several individuals, and continued dredge operations until 1936. At that time, Butte County issued regulations requiring replacement of topsoil. From 1936 until 1969, no organized dredging activity occurred at the L-P plant area or environs. Georgia-Pacific Corporation purchased the present L-P site in 1969 and completed construction of the sawmill facility in 1970. Louisiana-Pacific Corporation took control of the property in 1973. The hardboard facility was constructed in 1973, and L-P began operations at the landfill in 1978.

Between 1970 and 1984, L-P used a fungicide spray containing pentachlorophenol (PCP) to prevent fungal discoloration of sawn lumber. In 1973, a state agency discovered PCP contamination in local groundwater south of the L-P plant. Since 1973, state agencies have monitored the L-P site, and have detected PCP contamination in surface water, sawdust, and wood waste at the plant and landfill. As a result of this evidence and L-P's use of PCP, L-P was suspected of being partly responsible for the PCP contamination discovered in 1984 in groundwater south of the adjacent Koppers site.

In May 1985, the California Department of Health Services requested that EPA take over as lead agency at the L-P site. In February 1986, the L-P site was placed on EPA's National Priorities List (NPL). In December 1986, following unsuccessful RI/FS negotiations with L-P, EPA began remedial investigations of surface water, soil, sediment, groundwater, wood waste, and air at the L-P site for evidence of contaminants. EPA issued a Remedial Investigation (RI) Report in January 1989. Concurrent investigations of air quality were conducted by L-P and the Butte County Air Pollution Control District over a one-year period beginning in 1988. An Endangerment Assessment Report on risks from the L-P site was issued by EPA in September 1989, and a Feasibility Study (FS) Report was issued in May 1990.

In September 1990, EPA issued an Interim Record of Decision for soil and groundwater that required institutional controls as well as further soil sampling and groundwater monitoring. L-P conducted the required sampling and monitoring pursuant to an administrative order issued by EPA in July 1991. EPA issued a Supplement to the Endangerment Assessment in May 1995.

Results of the EPA and L-P investigations have shown that groundwater, surface water, soil, sediment, and wood waste contain various contaminants used by L-P and Koppers. Concentrations on the L-P plant were found to be highest in an area along the L-P/Koppers boundary. Contaminants in this area will be addressed as part of the Koppers cleanup. Elsewhere on the L-P plant, contaminant concentrations were not high enough to pose a significant risk to human health or the environment.

Although PCP was detected in surface and subsurface soils, surface waters and groundwater at the L-P site, the concentrations were so low as not to pose a significant threat to human health and the environment.

Correspondence between EPA and L-P can be found in the Administrative Record for this site, an index of which is attached to this Record of Decision.

3.0 COMMUNITY PARTICIPATION

The EPA has encouraged public participation throughout the RI/FS process, in accordance with CERCLA requirements.

Fact sheets were sent out to the public at key progress points in the investigation. Technical exchange meetings were held monthly or bimonthly at the site during the field work phase of the RI, with representatives of public agencies and local citizen groups invited to attend. RI/FS documents, including the Remedial Investigation Report, the Endangerment Assessment Report, and

the Feasibility Study Report, were sent to local libraries and a representative of a community group. Similarly, documents prepared by L-P and EPA following the 1990 Interim ROD also were sent to local libraries.

Public participation requirements for EPA's selection of the final remedy as defined in CERCLA sections 113(k)(2)(B)(i-v) and 117(a) were met by the activities described below.

The proposed plan was distributed using EPA's mailing list for this site. A public comment period on the proposed plan was held between May 20, 1995 and June 19, 1995. Public notice appeared in local newspapers, including the Oroville Mercury-Register, prior to the opening of the public comment period, and this notice. A formal public meeting was held on June 1, 1995. A transcript of the meeting can be found in the Administrative Record for this site.

The attached response summary provides EPA's responses to written comments submitted during the public comment period and to comments made during the June 1, 1995 public meeting.

4.0 SCOPE AND ROLE OF DECISION

Contaminant concentrations in soil and groundwater at the site do not pose a significant risk to human health or the environment for current or future uses of the site. Therefore, EPA is selecting no further remedial action as the final remedy at the L-P site.

The monitoring conducted over the last three years has identified low levels of formaldehyde contamination below health-based levels of concern in the shallow groundwater near the western sump. L-P stopped discharging washwater containing formaldehyde to this sump back in 1988. Current concentrations in shallow groundwater are believed to be due primarily to residual formaldehyde that is slowly leaching from sump sediments into shallow groundwater.

The western or northern extent of this contamination (or of the shallow aquifer) is not known since there are no shallow aquifer monitoring wells off site. Results from recent sampling of nine private wells west and northwest of the L-P plant indicate that past releases from L-P do not currently pose a significant health risk for users of existing wells. EPA does not believe that future well users will be at risk from the low levels of formaldehyde leaching from the western sump.

The selected remedy for the L-P site under the Superfund program is not a determination regarding actions that may be warranted under other regulations and statutes. For example, in April 1995 the California Regional Water Quality Control Board (RWQCB), acting under its own authority, ordered L-P to conduct additional groundwater monitoring to evaluate the presence of formaldehyde in the area west of the plant.

The selected remedy does not require that the existing well permit restrictions be retained. However, the Butte County Department of Public Health has indicated that it intends to retain its existing well permit restrictions until L-P has completed the study required by the RWQCB's April 1995 Order. At that time, any further action regarding well permit restrictions would be at the discretion of the County and the RWQCB.

The selected remedy requires no further action for surface soils, since the arsenic levels in site soils are within background concentrations for this area. The requirement in the Interim ROD for deed restrictions prohibiting future residential use of the property, which was based on concerns about arsenic levels in surface soils, is rescinded. Residential development of the L-P plant site is currently prohibited by the Butte County zoning ordinance which allows only industrial use of the site and by the existing deed restrictions, which were established to comply with the 1990 Interim ROD. However, since arsenic levels in surface soils at the plant do not exceed background levels, the selected remedy does not require that the deed restrictions be continued.

5.0 SUMMARY OF SITE CHARACTERISTICS

EPA began investigating contamination of soils, groundwater, surface water, sediments and air at the L-P site in 1987. Areas on the site where PCP was historically used and where PCP could have been released into the environment by L-P were investigated. In these locations, PCP was either not detected or detected in only trace levels at shallow depths. Based on these results

and a similar study of the Koppers site, EPA concluded that the contaminant plume in the regional aquifer that extends south of the Koppers and L-P sites originated solely from the Koppers property (see Figure 5-1).

EPA's investigations at the L-P plant and landfill found that groundwater, surface water, soil, sediment and wood waste contain various contaminants used by L-P and Koppers. Concentrations at the L-P plant were found to be highest in an area along the Koppers/L-P boundary (see Figure 1-2). Contaminants in this area came primarily from the Koppers site and will be addressed as part of the Koppers cleanup. Elsewhere at the L-P plant and landfill, arsenic and formaldehyde were present in concentrations high enough to be of potential concern.

In 1990, EPA completed its Remedial Investigation (RI) and Feasibility Study (FS) for the L-P site and issued an Interim Record of Decision (ROD). The 1990 Interim ROD identified arsenic and formaldehyde as the only two contaminants of concern for soil and groundwater. The potential future exposure routes of concern were 1) ingestion of soil associated with residential use of the plant property and 2) use of groundwater beneath the plant or landfill as a source of domestic water supply.

5.1 Soils

The limited soil data collected during the Remedial Investigation suggested that arsenic levels in log deck soils might be above naturally-occurring levels for this area. However, additional sampling (summarized in Table 5-1) has shown that surface soil at the L-P plant contains arsenic at concentrations comparable to background levels for this area of Oroville.

5.2 Groundwater

The L-P plant is underlain by two aquifers and an intervening aquitard (see Figure 5-2). The shallow aquifer typically extends from the ground surface to a depth of 20 to 40 feet, existing primarily in the dredge tailings deposited by gold mining operations during the early 1900s. The aquitard is a fine-grained silt and clay layer that restricts (but does not stop) downward movement of water from the shallow aquifer into the regional aquifer. There is no shallow aquifer beneath the L-P landfill, which is located on a bluff to the east of the plant. The top of the deeper, regional aquifer ranges from 40 to 70 feet below ground surface at the L-P plant, and the aquifer extends to depths of over 200 feet.

5.2.1 Arsenic in Groundwater

Data collected from both shallow and regional aquifer monitoring wells over the last three years are summarized in Table 5-1. Arsenic levels in the regional aquifer beneath both the plant and the landfill were consistently low, with an average concentration of 0.8 parts per billion (ppb) at the plant and 1.6 ppb beneath the landfill. These levels are within the range of background concentrations for the regional aquifer, based on data from both the L-P and Koppers sites.

Arsenic is present in the shallow groundwater at the plant at an average concentration of 9.1 ppb and ranges from a minimum of less than 1 ppb to a maximum of nearly 46 ppb. The highest shallow aquifer arsenic levels were consistently found in well ML-5, which is located about 60 feet south of the log deck pond (see Figure 1-2). Arsenic levels here ranged from roughly 8 to 46 ppb. It is not clear from the existing data whether the higher arsenic concentrations in well ML-5 are naturally occurring or related to a contaminant source such as sediments in the log deck pond.

In March 1995, EPA sampled nine private wells located west and northwest of the L-P plant along Pacific Heights Road. Arsenic levels were below the detection limit of 2.5 ppb in seven wells. Concentrations in the remaining two wells were approximately 5 and 24 ppb.

Table 5-1. Summary of Contaminant Concentrations in Groundwater and Soil

GROUNDWATER (May 1992 - January 1995)
(all values in ppb, or µg/L)

	----- ARSENIC -----		-- FORMALDEHYDE --	
	Maximum	Average	Maximum	Average*
Shallow aquifer at the Plant	45.9	9.1	200	38
Regional aquifer at the Plant	1.8	0.8	55	21
Regional aquifer at the Landfill	3.3	1.6	52	21

SOIL (May 1992)
(all values in ppm, or mg/kg)

	----- ARSENIC -----		
	Maximum	Average	Background
Surface soil at the Plant	4.6	2.7	≤ 6.5

NOTE: ppb = parts per billion concentration
ppm = parts per million concentration
µg/L = micrograms per liter
mg/kg = milligrams per kilogram

* the detection limit for formaldehyde is 20 ppb. Thus, an average concentration of 21 ppb means that formaldehyde was detected in only one or two samples over the last three years.

5.2.2 Formaldehyde in Groundwater

Formaldehyde is one of the primary chemicals in the "glue" used by L-P in the manufacture of hardboard at the Oroville plant. In surface waters, formaldehyde biodegrades (breaks down) relatively quickly; however, its fate in subsurface soil and groundwater has not been well studied.

Up until late 1988, L-P discharged the washwater from its "glue kitchen" into the western sump, which is a small unlined pond on the western side of the plant (see Figure 1-2). The washwater often was contaminated with formaldehyde, and as water seeped through the sides and bottom of the unlined sump, formaldehyde contamination spread to the surrounding shallow groundwater. In October 1988, L-P modified operations in the glue kitchen and began recycling the washwater within the plant.

Over the last three years, formaldehyde has been detected in shallow groundwater beneath the plant and less frequently in regional groundwater beneath the plant and the landfill (see Table 5-1). In the shallow aquifer, formaldehyde was found consistently only in samples collected from the monitoring wells near the western sump. In this area, the average concentration was 65 ppb, with a maximum of 200 ppb. In regional groundwater beneath the landfill, formaldehyde was detected once in only one well (at 52 ppb).

In March 1995, EPA sampled nine private wells located west and northwest of the L-P plant along Pacific Heights Road. Formaldehyde was detected in only one of those wells, at a concentration of 86 ppb.

6.0 SUMMARY OF SITE RISKS

In September 1989, EPA completed an Endangerment Assessment (EA), which examined the current and potential future risks to public health from contamination at the L-P site. The EA used results from the Remedial Investigation (RI) to determine the contaminants of concern. The EA then determined the possible exposure pathways (that is, ways people could be exposed to contaminants now and in the future) and calculated the risks associated with those exposures.

The 1990 Interim ROD identified three exposure pathways that might be subject to cleanup actions under the Superfund program: 1) use of the shallow aquifer beneath the plant for water supply, 2) use of the regional aquifer beneath the landfill for water supply, and 3) contact with surface soil by future residents at the plant property.

6.1 Risks from Exposure to Shallow Groundwater

Groundwater in the shallow aquifer beneath the L-P plant contains arsenic and formaldehyde at low concentrations. There are no existing water supply wells in the vicinity of the L-P plant that pump solely from the shallow aquifer, whereas several wells provide drinking water from the deeper regional aquifer. Some of the private wells located west and northwest of the L-P plant may be screened at depths that could permit drawing water from both the shallow and regional aquifers, although the lateral extent of the shallow aquifer in those areas has not been determined.

6.1.1 Formaldehyde

There is no federal drinking water standard for formaldehyde, although at the time the 1990 ROD was written, the California Dept. of Health Services had an advisory Drinking Water Action Level of 30 ppb. The inhalation of formaldehyde vapors can cause cancer; however, the ingestion of water containing formaldehyde is not believed to cause cancer. The 1989 EA calculated a cancer risk from exposure to formaldehyde in groundwater based on the assumption that formaldehyde vapors might be released during typical domestic use (primarily showering) and inhaled. Following generally conservative (that is, health-protective) assumptions used by EPA at the time, the EA determined that a formaldehyde concentration of 5 ppb would present a one in one million excess cancer risk.

In May 1995, EPA issued a supplement to the EA that contains a revised assessment of the health risks associated with exposure to formaldehyde in water using new toxicity/exposure information and techniques that have become available since preparation of the original EA. The supplement concluded that the cancer risk via showering associated with the maximum formaldehyde concentration measured in the last three years (i.e., 200 ppb) is below one in one million. The supplement goes on to recommend that drinking water criteria for formaldehyde be based on non-cancer health effects, and it concludes that 1,000 ppb is a safe maximum allowable level of formaldehyde in drinking water. The State of California's Department of Health Services recently raised its action level for formaldehyde to 1,000 ppb.

Both the maximum and the average concentrations of formaldehyde detected in the shallow aquifer at the plant over the last three years are substantially below the recommended limit for non-cancer health effects. Similarly, the maximum formaldehyde concentration found by EPA during the remedial investigation (650 ppb in 1988) is well below this limit.

6.1.2 Arsenic

Under the Safe Drinking Water Act, EPA's federal drinking water standard for arsenic is 50 parts per billion (ppb). Based on the results of sampling conducted over the last three years, the average arsenic concentration in the shallow aquifer does not exceed federal standards. The average concentration of arsenic in the shallow aquifer (9.1 ppb) represents an excess cancer risk level of approximately 3 in 100,000.

6.2 Risks from Exposure to Regional Groundwater

In the five wells sampled at the landfill over the last three years, formaldehyde was detected once in only one well (at a concentration of 52 ppb in August 1992). This concentration is well below the recommended limit of 1,000 ppb for drinking water.

6.3 Risks from Exposure to Surface Soil

As noted earlier, the arsenic levels in surface soils at the plant are within the range of local background concentrations. Therefore, there is no elevated risk from exposure to these soils.

7.0 DESCRIPTION OF THE NO-ACTION ALTERNATIVE

The 1990 Feasibility Study (FS) for the L-P site evaluated a full range of remedial alternatives for soil and shallow groundwater based on the assumption that contaminant levels were high enough to require cleanup. However, the additional data collected since the 1990 Interim ROD have shown that 1) there are no elevated contaminant levels in either the surface soil at the plant or the regional aquifer beneath the plant and landfill, and 2) contaminants in the shallow aquifer beneath the plant are present at low levels.

During the process of developing the proposed plan, EPA continued to evaluate only a limited number of alternatives (ranging from no action to institutional controls) for soil and groundwater. The selected alternative would require no further action to restrict exposure to groundwater in the shallow aquifer or soil at the L-P plant. No further groundwater monitoring is required, and the requirement in the Interim ROD for institutional controls (well permit restrictions and deed restrictions) is withdrawn.

8.0 EXPLANATION OF SIGNIFICANT CHANGES

The proposed plan for the L-P site was released for public comment in May 1995. EPA's preferred alternatives was documented in the plan. At that time, EPA proposed no further remedial action for either soil or groundwater as the final remedy at the site, including the withdrawal of institutional controls established pursuant to the 1990 Interim ROD. EPA has reviewed all written and verbal comments received during the public comment period. In the limited comments received from the public, one party supported the proposed remedy, while two others expressed concerns about the validity of the data but did not explicitly propose that EPA select an alternative remedy. The selected remedy is the same as the preferred alternatives for soil and groundwater presented in the proposed plan.

III. RESPONSE SUMMARY

July 1995

RESPONSE TO PUBLIC COMMENTS on the PROPOSED PLAN for the Louisiana-Pacific Superfund Site Oroville, California

I. INTRODUCTION

The United States Environmental Protection Agency ("EPA") held a public comment period from May 20 through June 19, 1995 on EPA's Proposed Plan for the final remedy at the Louisiana-Pacific ("L-P") Superfund Site in Oroville, California. The purpose of the comment period was to provide interested parties with an opportunity to comment on the Proposed Plan and related documents prepared since the 1990 Interim Record of Decision for the L-P site. The Proposed Plan and other documents comprising the Administrative Record were made available on May 20, 1995 at the Butte County Public Library in Oroville and at the Meriam Library, California State University at Chico. By May 19, 1995, fact sheets containing EPA's Proposed Plan had been mailed to all interested parties. Notification of the public comment period was published in the Oroville Mercury-Register newspaper.

EPA held a public meeting on June 1, 1995 at the Oakdale Heights School in Oroville, California. At this meeting, EPA representatives described the alternatives evaluated, presented EPA's preferred alternative and answered questions about the evaluation of the L-P site and the remedial alternatives under consideration.

Section 113(k)(2)(B)(iv) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") requires that EPA respond to significant comments on EPA's Proposed Plan. This Response Summary provides a review and summary of significant comments on the Proposed Plan. In addition to summarizing significant concerns and questions, the Response Summary presents EPA's responses to those concerns.

II. OVERVIEW OF THE RECORD OF DECISION

During the process of developing the final remedy proposed plan for soil and groundwater contamination, EPA evaluated a limited number of alternatives. EPA's preferred alternatives are described below.

Groundwater Alternative - No Further Action

EPA's selected a "no further action" remedy for groundwater. The additional data collected since the 1990 Interim ROD have shown that 1) there are no elevated contaminants in the regional aquifer beneath the plant and landfill, and 2) contaminants in the shallow aquifer beneath the plant are present at low levels that do not pose a significant risk to either human health or the environment. No further groundwater monitoring is required, and the requirement in the Interim ROD for institutional controls (well permit restrictions) is withdrawn.

Soil Alternative - No Further Action

EPA also selected a "no further action" remedy for soil. The additional data collected since the 1990 Interim ROD have shown that there are no elevated contaminant levels in the surface soil at the plant. The requirement in the Interim ROD for institutional controls (deed restrictions) is withdrawn.

III. SUMMARY OF COMMENTS AND AGENCY RESPONSES

EPA received both written and verbal comments during the public comment period of May 20 - June 19, 1995. These comments and the EPA responses are presented in this section of the Response Summary.

The originators of comments are identified in parentheses by last name, company or agency

abbreviations. Written comments were received from the following:

- Louisiana-Pacific Corporation (L-P).

Verbal comments on the Proposed Plan were received from two individuals and transcribed during the public meeting held June 1, 1995 in Oroville, California. The comments, which are documented in the meeting transcript (available in the Administrative Record), were received from the following individuals:

- James Hansen
- Otto Hansen.

1. The lab tests have been falsified. (O. Hansen)

Response: There is no evidence to support this claim. In order to ensure the quality of laboratory data, laboratory tests are conducted according to strict quality assurance (QA) and quality control (QC) procedures that are reviewed and approved by EPA before sampling work begins. After samples are collected and submitted to the lab, the analytical results are put through a data validation process to ensure that the laboratories are complying with QA/QC requirements. These quality control procedures are described in detail in the Quality Assurance Project Plan, which is part of the Remedial Design Work Plan prepared by Louisiana-Pacific. Both documents are part of the Administrative Record for this site.

2. What laboratories analyzed the samples? Were any samples sent to Eureka Labs? (J. Hansen)

Response: No samples were sent to Eureka Labs. Over the last three years, L-P has used the CH2M Hill's Quality Analytical Lab in Redding, CA (also known as Quality Analytical Laboratories) for the analysis of both soil and groundwater samples from the site. During the earlier remedial investigation (RI) of the site conducted by EPA, a number of labs were used for sample analysis. However, no samples were sent to Eureka Labs.

EPA is aware of the data quality problems associated with samples analyzed by Eureka Laboratories. Although none of the samples from the L-P site were sent to this lab, two of the labs that analyzed RI samples for EPA were later found to have produced questionable data. The samples that were sent to these labs (for analysis of organic contaminant levels in soil) represented only a portion of the soil samples collected and analyzed. EPA has gone back to review the data obtained from these labs and the extent to which it was used in decision-making for the site. The agency concluded that the questionable lab samples were not critical to decisions made at the site and that the remaining data met the data quality standards.

3. L-P has no objection to the proposed "no further action" remedy. (L-P)

Response: Comment acknowledged.

4. In the 1989 draft Endangerment Assessment (EA), EPA's subcontractor used a sophisticated exposure modeling approach to evaluate the risk associated with showering. Based on this modeling, the subcontractor estimated the excess cancer risk for the maximum plausible exposure case to be 1×10^{-6} (or one in one million). The draft EA has been "revalidated" by the supplement and supports the agency's proposal to require no further action. (L-P)

Response: With respect to risks posed by formaldehyde inhalation associated with showering, the results of the subcontractor's proposed modeling approach are consistent with the conclusions of the 1995 supplement, i.e., this pathway of exposure does not pose a significant risk to human health at the levels of formaldehyde contamination found at the L-P site.

At the time the Endangerment Assessment (EA) was being prepared, EPA Region 9's policy was to assume that the in-home inhalation exposure to an organic chemical that volatilizes from domestic water (i.e., the inhaled daily dose) is equivalent to the amount that would be ingested by drinking two liters of that water. As a result, the modeling approach proposed by the contractor in the draft EA for the L-P site was not used in the 1989 final EA.

EPA's 1995 supplement to the EA employed a screening level analysis based on a simplified equilibrium model to evaluate risks associated with formaldehyde inhalation during showering. Overall, this type of analysis will tend to overstate exposures/risks. Since this analysis concluded that the inhalation pathway is not a pathway of concern for formaldehyde released during showering, EPA did not pursue the use of a more sophisticated model to estimate inhalation risks.